

Claims (for U.S. application)

1. A light source unit comprising:
a substrate formed of a material having high heat conductivity;
5 a plurality of light emitting diodes (LED's) mounted on the substrate for irradiating beam to an object;
a chip resistor mounted on said substrate; and
heat generation controlling means for heating the substrate with heat generated in said chip resistor upon supply of power to the chip
10 resistor.
2. The light source unit according to claim 1, wherein said plural LED's are arranged in the form of an array on the substrate and a plurality of said chip resistors are arranged linearly along the array of
15 LED's.
3. The light source unit according to claim 1, wherein said substrate includes a metal base, an insulating layer formed on the base, and a printed circuit formed on the top face of the insulating layer, a
20 bonding wiring being provided between terminals of the printed circuit and the LED's and said chip resistors being solder-fixed to the terminals of the printed circuit.
4. The light source according to claim 1, wherein said plural
25 LED's are adapted for irradiating at least three kinds of beam of red, green and blue.
5. The light source unit according to claim 1, further comprising light emission controlling means for supplying power to the
30 LED's and warm-up controlling means for supplying a predetermined

maximum power to said light emission controlling means and said heat generation controlling means at the time of startup of the light source unit.

5 6. The light source unit according to claim 1, further
comprising temperature determining means for determining a temperature
of the substrate, a radiator thermally coupled with the substrate and a fan
for feeding cooling air to the radiator, and fan controlling means operable to
drive said fan when the temperature of the substrate determined by said
temperature determining means has exceeded a predetermined target
10 temperature range and operable also to stop said fan when the determined
temperature falls below said target temperature range.

 7. The light source unit according to claim 6, wherein said
temperature determining means comprises a thermistor mounted on the
15 substrate adjacent the LED.